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ABSTRACT

This annotated bibliography contains a list of resources addressing the efficacy of Signing Exact English (SEE II). Forty-three entries summarize results of research that overall indicate the success of students with hearing impairments who learn SEE II. (CR)

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Luetke-Stahlman

THE EFFICACY OF SEE...
An Annotated Bibliography of SEE II and Related Research
B. Luetke-Stahlman, Ph.D. (8/1998)

ED 427 481

Early 1970s

Signing Essential English (SEE I), Signing Exact English (SEE II), Signed English, and other manual systems were invented.

Basil, K., & Quigley, S. (1977). The influence of certain language and communication environments in early childhood on the development of language in deaf individuals. Journal of Speech and Hearing Research, 20, 95-107.

Basil and Quigley investigated the effects of home environment on the language and academic performance of 72 subjects. The linguistic environments were (a) manual English, where deaf parents signed and fingerspelled to approximate standard English grammar; (b) average manual, where deaf parents did not sign standard English; (c) intensive oral, where hearing parents used oral techniques -- no signing; and (d) average oral, where hearing parents didn't sign but had no special oral training. The manual English group scored higher on all measures of English syntax, reading, and academic achievement.

Moores, D. (1978). Educating the Deaf: Psychology, principles and practices. Dallas, TX: Houghton-Mifflin.

Moores reviewed research done in the 60s and early 70s (pp. 176-177) that found that ASL-using students of deaf parents scored higher on speechreading, reading, writing, and English vocabulary tasks, and were more apt to go to college than children exposed to oral only instruction (which was the only instructional input being used at the time). See Luetke-Stahlman (1990) for comparisons between ASL, oral English, and the sign system use in the 80s.

Marmor, G., & Petitto, L. (1979). Simultaneous communication in the classroom: How well is English grammar represented? Sign Language Studies, 23, 99-136.

The purpose of the study was to document that the simultaneous communication used by two teachers of the deaf was ungrammatical. Subjects were teaching regular classes at a residential school for deaf children. Comparisons were made between teachers' spoken and signed grammar (e.g., declarative sentences, questions, relative clauses, pronoun use, verb tense, and several manual features). Neither teacher signed more than 10% of his/her utterances in accordance with English grammar. The study illustrates that PSE is difficult to use consistently and was not intended to encode either the grammar of ASL or English. For comparison, see Luetke-Stahlman, B. (1988). SEE II in the classroom: How well is English represented? In J. Gustason (Ed.), Signing English in total communication: Exact or not? Los Alamitos, CA: Modern Sign Press. In this study, the methodology used by Marmor and Petitto was replicated with adults who sign high percentages of English grammar using SEE II.

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Moores, D., Kluwin, T., Johnson, R., Ewoldt, C., Cox, P., Blennerhassett, L., Kelly, L., Sweet, C., & Fields, L. (1987). Factors predictive of literacy in deaf adolescents with deaf parents: Factors predictive of literacy in deaf adolescents in T. C. programs (Project No. NIH-NINCDS-83-19. Final Report. Washington, DC: Department of Health and Social Services.

Moores et al. (1987) found that for deaf adolescents of deaf parents, predictive factors of literacy skills "related to knowledge of English vocabulary and grammar, the ability to utilize even minimal amounts of residual hearing, and in the case of writing, fluency in English-based signing" (p. 101). For deaf teens of hearing parents, knowledge of vocabulary and grammar were predictive of literacy skills.

Commission on Education of the Deaf (1988). Toward equality: Education of the deaf. Washington, DC: U.S. Government Printing Office.

This federal commission emphasized that all educational programs for deaf children should be characterized by consistent and complete language input. David Stewart (1997) asked (in reference to the Commission's statement) "Although incomplete English in Signs is criticized as being an inadequate base from which English grammatical structures can be derived, will the same criterion be used to evaluate the instructional value of ASL?" (p. 107).

Luetke-Stahlman, B. (1988a). A series of studies investigating SEE II use. In J. Gustason (Ed.) Signing English in total communication: Exact or not? Los Alamitos, CA: Modern Sign Press.

The purpose of the article was to summarize four studies initiated to discern the usefulness of SEE II. The studies reviewed are elsewhere in this manuscript with the exception of "The Castle Study" and "Parents Use and Improvement of SEE II". Subjects in the Castle study were 12 hearing and 5 deaf preschoolers and their parents. Results were that the parents using SEE II were capable of asking questions that were highly similar to those asked by the hearing parents.

Parents Use and Improvement of SEE II is the first part of a study later published in JSHR (Moeller and Luetke-Stahlman, 1990). The second part is reviewed in this manuscript (Luetke-Stahlman & Moeller, 1990). Results that the MLU of 5 parents was below that of their child. Parents deleted between 7-49% of their messages in sign and complex features weren't used. Grammatically accurate SEE II involved 14-85% of the utterances. A number of other meaning and use results are reported. The authors found analysis of adult language samples a rich source for planning individualized interventions (whether with parents, teachers, or interpreters).

Luetke-Stahlman, B. (1988b). SEE II in the classroom: How well is English represented? In J. Gustason (Ed.), Signing English in total communication: Exact or not? Los Alamitos, CA: Modern Sign Press.

The aim of the study was to replicate the findings of Marmor and Petitto (1979) who found that two PSE using residential teachers could sign only 10% of the grammar of English. Subjects were four hearing teachers and three hearing parents. Classroom language samples were collected, analyzed, and compared to the findings of Marmor and Petitto (Table 3, p. 129). Percent of grammatically correct utterances were 80-100% for Wh- questions, 76–100% for declaratives, 87–100% for relative clauses, 97–100% for personal pronouns, 50-100% across three verb tenses.

Luetke-Stahlman, B., (1988c). The benefit of oral English-only as compared with signed input to hearing-impaired students. The Volta Review, 90(7), 349-361. See also Luetke-Stahlman, B. (1988). Educational ramifications of various instructional inputs for H. I. Students. Association of Canadian Educators of the Hearing Impaired Journal, 14(30), 105-121.

Traditionally the choice of instructional input mode to be used with students who are deaf or hard of hearing (D/HH) has been made without empirical knowledge about the effectiveness of one system compared to another. The research project described in this article addressed the question of whether subjects who are D/HH and exposed to instructional communication inputs that attempt to *completely* encode the grammar of a language (e.g., oral English, SEE systems) would score significantly higher on a battery of English language, reading, and speech tests than would subjects exposed to signed instructional inputs that *incompletely* encode spoken English (e.g., Signed English, Pidgin Signed English). Subjects were D/HH and 5-12 years of age, representing programs for the deaf across the country. A series of analyses of covariance was done and allowed for comparison of test score means from subjects exposed to "complete" oral English-only input with those of subjects exposed to "incomplete" inputs. Instructional input modes served as independent variables and scores from seven tests of literacy served as dependent variables. Results were that subjects exposed to grammatically complete inputs (e.g., oral English, SEE II) significantly scored better than students exposed to incomplete inputs. Therefore, to simply discuss the educational benefit of using "total" or simultaneous communication is misleading. When ANCOVAs were used to compare each input with every other instructional input, results were that SEE II students outscored students exposed to other inputs -- followed by oral English only and SEE I (MSS). Subjects exposed to Signed English or PSE did not outscore subjects exposed to grammatically complete sign systems. Educational ramifications of using oral-only and SEE inputs to enhance the reading, English language, and speech skills of students who are D/HH are also provided. (In-depth analysis of the reading data from this study is discussed in Luetke-Stahlman, 1990).

Luetke-Stahlman, B. (1988d). Assessing the semantic language development of hearing impaired students. Association of Canadian Educators of the Hearing Impaired (ACEHI), 14(1), 5-12.

The purpose of the article was to describe English meaning (content) and how to code it in children's language samples. It is suggested that the identification of a child's meaning development can assist parent's and professionals in determining whether the child's linguistic development is similar or dissimilar to same-age, hearing peers. If it is not, it is recommended that objectives be written to include specific meaning targets and that facilitation of the skills

occur. Luetke-Stahlman later (1989b) used this same semantic coding strategy to analyze adult spoken and signed English language samples.

Moeller, M., & Johnson, D. (1988). Longitudinal performance of deaf students using manually coded English. ASHA National Convention. Boston, MA.

The purpose of this study was to document ten years of reading and English language ability of students (7-18 years of age) using SEE II. Subjects were from the Sedalia, Missouri public school program. Results were a) systematic improvement in complexity of English grammar use and reading with age; b) criterion achieved on The Test of Syntactic Ability by 14 years of age; and c) consistent bound morpheme use observed in conversation. Speech intelligibility was generally low for most subjects. 9/12 subjects read at or above grade level.

Series of memos from deaf adults primarily at Gallaudet University in response to a paper entitled "Unlocking the Curriculum" (Johnson, Liddell, and Erting, 1989).

Donald Moores' memorandum (3/3/89) reviewed the Unlocking manuscript as a rough draft of a research paper and credits Bill Stokoe in the 1970s and Steven Quigley in the 1980s who wrote similar proposals. He recommended that Johnson et al. (a) forthrightly address the complexities of bilingual education rather than cite only three references; (b) thoroughly review all the literature on simultaneous communication rather than to cite a review by Quigley and Paul (1984); and review the literature on comprehension of different modes of communication as the authors have "ignored a substantial body of literature which seems to refute their contention completely" (p. 3). Moores then quoted from a dozen research studies that found simultaneous communication to be as beneficial or more beneficial than ASL ("colloquial signing").

Larry Stewart (12/14/89) wrote that he felt embarrassed by [Johnson et al.'s] subjectivity, one-sided lambasting of SimCom and freewheeling criticism of...deaf education generally. "The message [of the Unlocking paper] was an insult to those Gallaudet deaf faculty members and thousands of deaf graduates who were successfully educated under SimCom or Total Communication" (p.1)...I am perplexed over [the] apparent belief that deaf students are all alike (i.e., all have the same language need – ASL)...I am not aware that linguists consider themselves qualified authorities in the areas of applied communications and educational theory" (p.5). (Stewart, 1992, expanded his thoughts in "Debunking the Bilingual/Bicultural snow job in the American Deaf community. A Deaf American monograph: Viewpoints on Deafness, 42, 129-142.)

Donald Peterson (12/19/89) stated that "the vast majority of Gallaudet graduates enter an English-using world. They can succeed ONLY if they can use English with ease." Where is the proof, he asked, that SimCom has failed at the college level? "Something like 60% of our graduates go on for advanced study...this is failure? With regard to sign systems, he wrote, "Full access to information is limited by the competency of the signer [Johnson, et al.] seem to forget that there is a manual alphabet. If precise transmittal of information is necessary and desirable, that is nothing wrong with spelling words."

Luetke-Stahlman, B., (1989a). Can SEE-II children understand ASL-using adults? American Annals of the Deaf, 135(1), 7-8.

The purpose of the study was to investigate whether students accustomed to an invented sign system could comprehend ASL signed by deaf adults. One group (n=12) of subjects was exposed to SEE II in their day school classrooms. The other group (n=14) attended residential programs and was exposed to Signed English, PSE and ASL. Both groups observed three videotaped short stories and answered written questions following each. Both groups answered approximately 25 percent of the comprehension questions correctly; their mean of correct answers did not differ significantly. Results of the study suggest that students exposed to SEE II in public school and lacking experiences with deaf adults are able to comprehend ASL as well as their peers who are exposed to ASL at residential schools.

Luetke-Stahlman, B. (1989b). Documenting syntactically and semantically incomplete bimodal input to hearing-impaired subjects. American Annals of the Deaf, 133(3), 230-234.

The purpose of the study was to investigate the syntactic and semantic nature of what is being signed by adults to deaf children. This is important because most deaf children in the United States are now exposed to some form of signed instructional input and that most teachers do not use ASL (Johnson, 1986). Twelve female teachers served as subjects in this study, designed to document the characteristics of instructional bimodal communication in classrooms where SEE-2 and Signed English were used. Results were that some teachers could, indeed, accurately encode semantic information in their instruction and were extremely proficient in using a sign system. It is suggested that professionals and researchers concerned with the educational benefit of using pedagogical systems need to sample and analyze instructional input in authentic situations. Teacher trainers should consider the requirement of a reasonable (e.g., 80 percent or better) voice-to-sign ratio ability from future teachers enrolled in intermediate sign classes.

Wandel, J. (1989). Use of internal speech in reading by hearing and hearing impaired students in oral, TC, and Cued Speech programs. Unpublished doctoral dissertation. New York: Columbia University. The studies supports the notion of CCC input.

Found no difference in the SAT reading test between hearing students and deaf students using Cued Speech.

Luetke-Stahlman, B., (1990). Types of instructional input as predictors of reading achievement for hearing-impaired students.

The purpose of this study was to investigate the reading abilities of a large number of students who were D/HH exposed to variants of simultaneous communication as instructional input while controlling for variables that have been shown to affect reading achievement. The hypothesis was that students exposed to inputs that were a language or were an invented system

designed to correspond closely to the form and meaning of spoken English (for example, oral English only, Cued Speech, Seeing Essential English, Signing Exact English, American Sign Language) would score higher on reading tests than students exposed to inputs that did not as closely represent spoken English (for example, Signed/Manual English and Pidgin Sign English). Subjects were 176 children of normal intelligence, 5-12 years of age, who had no additional handicapping conditions that interfered with learning other than hearing loss, and had been enrolled in their school program for at least three years. Information about the sex, minority status, socioeconomic status, and hearing acuity of the subjects was also collected.

Subjects were divided into two primary groups of learners: those exposed to input that had the potential to represent a complete language or system (labeled "Group A") and those exposed to input that incompletely and inconsistently represented English (labeled "Group B"). Group A subjects were those exposed to oral-only English, Cued Speech, Seeing Essential English (SEE-1), Signing Exact English (SEE-2), and ASL. Group B subjects were those exposed to Signed/Manual English and PSE. Group A (complete) and Group B (incomplete) subjects were similar in many ways. The ratio of males to females was about equal for each group throughout the series of analyses. More parents of Group B subjects judged themselves to be middle and lower class than parents of Group A subjects. In two comparisons more Group A subjects judged themselves to be upper-middle class.

Date of birth, age at time of testing, aided and unaided audiometric information, and home-environment survey data were collected for each subject. Videotaped language samples and questionnaires concerning sign use were obtained from at least two teachers in each program using signed instructional input. Surveys regarding reading were collected from all programs used in the study. A literacy battery consisting of seven tests was administered to each subject.

To determine whether subjects exposed to input that had the potential to represent a complete language or system scored higher on two reading tests than students exposed to an incomplete input, an analysis-of-covariance procedure was utilized. Various inputs served as independent variables, and the two reading tests served as dependent variables. Age and hearing acuity were manipulated as covariates.

Frequency counts and percentages were calculated to determine whether the complete and incomplete groups differed with regard to reading-curriculum and home-linguistic-environment factors. Analysis of variance was used to determine significant differences among items of these surveys.

Percentages of voiced mean-length-utterance (MLU), signed MLU, voice-to-sign ratio, and semantic intactness (Moeller and Luetke-Stahlman, 1990) were used to analyze teachers' language samples and to verify the Group A/Group B distinction.

Results indicated that students exposed to instructional inputs that are a language or are systems in which an attempt is made to complete code English score higher on one of two selected tests of reading than do students exposed to input in which teachers do not attempt to correspond closely to spoken English. Young deaf students exposed to languages or systems that are presented in a consistent and complete manner score only slightly below their hearing, age-

equivalent peers (i.e., four-to-six-year-olds and seven-to-nine-year-olds). (Results of the English language test scores were similar and were examined in Luetke-Stahlman, 1988c).

Finally, analysis of covariance was used to compare each instructional input with every other instructional input, disregarding the prior categorization of "complete" and "not complete" groupings. The Newman-Juels procedure allowed a determination of which groups of subjects exposed to specific inputs scored higher on the literacy battery than other groups of subjects.

When ANCOVAs were used to compare each input with every other instructional input, results were that SEE II students outscored students exposed to other inputs – followed by oral English only and SEE I (MSS). Subjects exposed to Signed English or PSE did not outscore students exposed to grammatically complete sign systems.

Luetke-Stahlman, B., & Moeller, M. (1990). Enhancing parents use of SEE-II: Progress and retention. American Annals of the Deaf, 135(5), 371-378.

This study documented the changes in spoken and signed input of five hearing parents to their hearing-impaired children over a 12-month time period. Two baseline sessions per parent were videotaped and analyzed (Moeller & Luetke-Stahlman, 1990), and then two intervention sessions and one retention session were filmed. Parents were seen individually by one author after each session and given feedback on specific characters of their communication abilities. Transcription sheets, graphs, and their child's Individual Educational Plan (IEP) objectives were used to help parents target goals for improvement. All parents improved in at least one linguistic area of need, and several parents changed impressively in form, meaning, and use of SEE II. These improvements allowed the parents to completely and consistently provide comprehensible messages to their children. See also Luetke-Stahlman (1988a).

Moores, D. (1990). Old w(h)ine in new bottles. A memorandum to "the [Gallaudet] campus community." This material has basically already been annotated in this manuscript in Moores, D. (1989) on page 3.

Schick, B. (1990). Integrating the language of the schools and the language of the community. Unpublished paper dated 4/23/90 and written in response to Johnson et al. for the Show Me Symposium in Columbia, MO.

"There are many deaf people who communicate much of the time in English-like signing. That is their choice. In fact, there are teachers and parents who have become quiet proficient at signing. In fact, many programs do not provide sufficient help to parents and teachers who need to improve their sign skills. It is not a big surprise that hearing people don't sign very well given the kinds of support they have in learning sign or given the fact that most schools do not require their staff to have proficient sign skills. It is my opinion that changing from English signing to ASL will not change these facts. Teachers and parents would simply sign ASL poorly unless fundamental attitudes about the absolute necessity of improving the quality of signing around children are changed" (p.2).

"Important evidence is that there are deaf children who learn English quite well via MCE. Mary Pat Moeller and I have been investigating two programs that stress good sign skills for both teachers and parents. These deaf students have English skills that compare well with those of hearing students. This doesn't mean that they are signing English morphemes exactly, which is how many people measure MCE. But when you look at more important parts of English, such as language complexity, the group of deaf students we studied use English as well as hearing high school students. Thus, it is my opinion that we cannot conclude that MCE cannot be learned" (p.3).

"It may not be correct to say that ASL is the "native" language of deaf people. A native language is the one you learn as a child, your "mother tongue". Some people have the opinion that ASL is the native language of deaf people. The only people who know ASL as a native language are those deaf and hearing people who were lucky enough to have deaf parents and who signed from very early childhood. Just because you are deaf does not mean that you also have native ASL skills. If your parents are hearing and/or do not use ASL, you would have to learn it just like everyone else learns a second language. Research shows that if you do not learn ASL early in life, you cannot simply learn it as an adult, regardless of whether you are hearing or deaf. Many people have the misconception that sign language is learned more easily by deaf people than by hearing people. ASL is a natural language but it still requires time to learn" (p. 4).

"It is not correct to say that knowing ASL automatically means that you can learn English easily. Also it is not correct to say that you can't learn English if you don't know ASL. In addition, studies that have looked at how well deaf people understand ASL and MCE have found only small differences. Some studies have shown that students comprehend MCE better than ASL, which is opposite to the opinion that it is easier to understand. In general, the advantages of using ASL over English with deaf students have been either fairly small or nonexistent. This does not mean that ASL is not a valuable language. But it does mean that there is nothing magical about ASL; if you know it, you can understand it, but if you don't know it, you can't.

I would like to add here that there is one very clear fact from research. If you do not learn a language early, you will never catch up. We know that delaying language learning until a child is older is one of the worst things we can do to a child. I share an opinion with other researchers that both ASL and English serve this necessary function very well" (pp. 4-5).

"For both children and adults, it is impossible to learn a language fluently if you don't see fluent models" (p. 5).

"Some researchers believe that learning a written language is not dependent on expressive signed language. This is not a fact…Knowing ASL does not automatically mean that you will learn to read English" (p. 6-7).

"The only real fact in bilingual education for hearing children is that there is **no** consensus on the "best" type of bilingual education. All hearing children do not automatically

become bilingual when you put them in a bilingual program. It is simplistic to assume that bilingual education is the solution" (p.7).

"There is one last fact that is critically important to this language issue. Deaf people themselves do not all agree that English is "unlearnable" by deaf children. There are many Deaf adults who are as fluent or more fluent in English as many of their hearing peers. They reflect the diversity of the Deaf community. I. King Jordan recently quoted Abraham Lincoln, "When all people are thinking alike, no one is thinking." The issues surrounding ASL, the traditional language of the community, and English, the traditional language of the schools, are profound. We will not do justice to our deaf children if we do not consider facts carefully and test opinions scientifically. It is my opinion that education should create options, and not restrict them" (p.8).

There are also quotes in the Schick paper from a panel of educators. This quote is taken from that section:

"One panelist made the point that some invented signs are confusing. For example, the SEE II sign, STEP-FATHER, is signed like "step" + "father". Another panelist made the point that, like spoken words, many signs are arbitrary. Meaning does not come from the sign itself. For example, the sign SCHOOL does not make a picture of its concept" (p.9).

Hyde, M., & Power, D. (1991). Teachers' use of simultaneous communication: Effects on the signed and spoken components.

The authors reported on the use of Australian Signed English which is similar to SEE II except that affix markers are fingerspelled. A second difference is that different signs indicate irregular past and present tense verbs (e.g., ran, run). Sign-to-voice ratios across four teachers averaged 91% (89-94%). The authors noted that Maxwell and Bornstein's (1985) comment that "correspondence between the spoken and manual components is not essential because there is, for the [deaf] receiver, a synergy between the components that interactively produces a more complete reception of English" (p.385) is not supported by empirical evidence.

The authors also mentioned that work by Savage, Savage, and Potter (1987) (92% sign to voice ratio) and Swisher and Thompson (1985) (as high as 98%) reported results similar to theirs.

Hyde and Power concluded that a high sign-to-voice ratio, and therefore, grammatically intact English, is possible to achieve. "Our evidence and that of Mayer and Lowenbraum (1990) indicates that in attempting simultaneous communication teachers are not attempting an impossible task (Strong & Charlson, 1987) and that when properly trained and motivated they can present quite complete models of signed English that make English more accessible to deaf children" (p. 386).

Luetke-Stahlman, B. (1991). Following the rules: Consistency in sign. Journal of Speech and Hearing Research, 34, 1293-1298.

It was the purpose of this study to investigate teachers' and interpreters' consistency with regard to following the rules of three sign systems. Subjects were asked to interpret a carefully designed set of stimuli; their performance was videotaped for later bimodal transcription and analysis. Careful descriptive analysis of the form and meaning of the data revealed that some professionals who purported to use a particular system frequently did not follow accurately the rules of that system, but many can encode in sign the *meaning* of what they are saying. Signing Exact English (SEE II) users were able to follow the rules of that system for a significantly higher percentage of time than users of either of the other two systems ($p < .03$ and $p < .001$). They also were able to encode the meaning in sign of what they were saying an average of 86% of the time--significantly higher than users of Signed/Manual English ($p < .02$). However, the average percentage of ability to follow the precise rules of a system was below 57% for even the adults who used SEE II. It is possible that the acquisition of English is confounded for children who are deaf or hard of hearing when professionals do not consistently and completely sign the system they purport to use.

Stucklass, R. (1991). Reflections on bilingual, bicultural education for deaf children: Some concerns about current advocacy and trends. American Annals of the Deaf, 136(3).

Stucklass reflected on three points of concern with regard to BiBi (ASL for conversing, English for reading and writing) programming when students are deaf or hard of hearing: 1) Whatever aptitude and motivation the deaf child might have to develop expressive and receptive spoken English language skills to even a moderate degree may be seriously and permanently jeopardized by a practice that fosters ASL to the exclusion of speech; 2) Given that most deaf children have a greater propensity for learning ASL at any age than for learning English, it is unwise to delay the child's introduction to English beyond the period of optimum language development; 3) In light of the existence and relative ease of learning a variety of visually oriented communication modes that include features of both ASL and spoken language, it is unreasonable and presumptuous to expect parents and siblings to substitute ASL for their own native language as the exclusive or primary mode of communicating with and around their deaf children.

Moores, D. (1992). One hand clapping (editorial). American Annals of the Deaf, 137(4), 307.

Moores described a symposium in August 1990 at Hofstra University organized by Professor Frank Bowe and chaired by the late Terrence J. O'Rourke with the expressed purpose of assessing, from a theoretical and practical frame of reference, developments in the educational uses of ASL. An unresolved issue at the symposium dealt with the assumption by some participants that it would be more effective to develop ASL as a first language and then teach English as a second language exclusively through reading and writing ("BiBi"). "Millions of hearing children start school with a mastery of English or Spanish or German and still encounter great difficulty in learning to read and write the language they already speak fluently. It seems naïve to assume that deaf children - or hearing children - can master a second language only through reading and writing, if indeed they have not been exposed to reading and writing in their

first language" (p. 307). Moores contended that the theoretical basis for the BiBi method has not been established nor practical implementation thought through.

Schick, B., & Moeller, M. (1992). What is learnable in manually coded English sign systems? Allied Psycholinguistics, 14, 313-340.

The purpose of the study was to document which aspects of English are learnable manually and which are problematic for deaf students. Subjects were 13 profoundly deaf children (7;1 – 14;8 years of age) from Sedalia, Missouri and Omaha, Nebraska (strong SEE II programs) and 10 hearing high school students. Results were that the subjects had age-appropriate syntactic and lexical skills. Performance on standardized reading tests reveal that the subjects read within normal limits when their scores were compared with those of hearing peers. Variable but substantial deficits in inflectional morphology (use of affix markers) skills were also found.

Luetke-Stahlman, B. (1993). Signing Whole English. Letter to the editor (p. 380), American Annals of the Deaf, 137(5), 380. Here and in a similar article, Whole English (Deafness 1993-2013; A Deaf American Monograph, 43; p. 89-92), the author questions the motivation of adults who signed conceptually to deaf students.

Luetke-Stahlman, B. (1993). Three PSE studies: Implications for educators. Proceedings of the Issues in Language and Deafness Conference. Available from M. P. Moeller, Boys Town National Research Hospital; 55 N. 30th Street; Omaha, NE.

Luetke-Stahlman (1988a) found, in a project referred to here as Study 1, that a group of deaf students exposed to adults who purported to use Signed English or PSE scored significantly lower on a batter of English language and reading tests than did children exposed to teachers who proported to use ASL, oral English, SEE I, or SEE II. Analysis of adults' spontaneous language samples revealed that SE/PSE users had a sign-to-voice ratio of 71% (SEE=86%) and a semantic intact ratio of 58% (SEE=82%). (The data analyzed from the children in this study is described in Luetke-Stahlman 1988c and 1990).

In Study 2 (Luetke-Stahlman, 1991), the receptive language abilities of hearing adults were studied. Subjects (n=22) viewed a videotaped set of stimuli (without audio) and transcribed 25 sentences that they had originally signed in a previous study (Luetke-Stahlman, 1991). The total number of sentences for which each group of SEE, SE, or PSE signers correctly identified (wrote) selected form and meaning features were analyzed. Analysis revealed a significant difference for the ability to transcribe both form and meaning comparisons across the three groups. Post hoc analysis identified a significant effect favoring SEE subjects compared to PSE subjects and Signed English subjects with regard to form and meaning. That is, SEE users could more accurately transcribe their own signed sentences (without audio) two years after they had originally signed them. Further, SEE II users accurately transcribed themselves signing seven figurative phrases 95% of the time (SE=71%, PSE=23%).

In Study 3 (Luetke-Stahlman & Tyrell, 1995), the quality of PSE was controlled. The task required proficient PSE users to transcribe two highly similar paragraphs of information containing multiple uses of the word "run", one signed in PSE and one signed in SEE II. Subjects, who had not studied SEE and were politically opposed to its use, transcribed both the form and meaning of the SEE version significantly more accurately than they did the PSE version. The three studies are discussed with regard to ramifications for education at home and at school when grammatically complete input is provided rather than Signed English or PSE.

Luetke-Stahlman, B. (1993). Foreword: A look at SEE in the 1990's. In Gustason, G., & Zawolkow, E. (eds.). Signing Exact English Dictionary.

The purpose of the piece was to review the research pertaining to the sign system SEE II that was available up until 1991. Initial research demonstrated that SEE students could understand stories told in American Sign Language as well as residential children (Luetke-Stahlman, 1989), that SEE II children could read better than PSE students (Luetke-Stahlman, 1988 and 1990), that building a first language or system base was essential if age appropriate reading and writing abilities were a goal (1982 and 1986), and that hearing parents of young deaf children could improve their SEE II signing and retain that improvement over time (Luetke-Stahlman and Moeller, 1990). Work by Luetke-Stahlman, (1988) demonstrated that deaf children exposed to SEE II outscored users of oral English only, Seeing Essential English, Signed/Manual English, Pidgin Signed English, and ASL on tests of reading and English language.

The author reviewed work by Moeller and Johnson (1989) who completed a study based on communication assessments conducted with deaf children in Sedalia, Missouri and demonstrated that the majority of the children were reading at or above grade level. Analyzed language samples of the teachers in this same program had illustrated that these professionals, like their colleagues in Omaha, were able to almost perfectly sign what they said while teaching deaf students (Luetke-Stahlman (1991) and Luetke-Stahlman (1989a and 1989b). Schick and Moeller (1992) completed a detailed analysis of language samples from Sedalia and Omaha students who used SEE II. They found that the students had acquired some of the most complex rules of syntactic structure in English and had internalized the rules of English. Further, they stated that SEE II had served as an input for the native language learning of English for these students. They concluded that the acquisition of ASL is not a "universal eventuality" (Schick and Moeller, presentation paper, 1989).

Finally, the author noted that Mayer and Lowenbraun (1990) were first to document the logical relationship between supervisors' expectations in terms of teacher signing, their attitude, and their sign proficiency. They found that adults with high sign-to-voice ratios had received inservice, were motivated to sign accurately, and were supervised.

Paul, P., & Jackson, D. (1993). Toward a psychology of deafness: Theoretical and empirical perspectives. Boston: Allyn & Bacon.

In Chapter 5, the authors reviewed relevant research regarding bilingualism, first-language reading, inner speech, the necessity of speech coding for second-language reading and the efficiency of ASL for developing English literacy skills. They concluded that "ASL is no more sufficient for developing English literacy skills than is Chinese"...without a [communicative] command of the English language, ASL students, like other poor readers, will rely too heavily on prior-knowledge skills, which can lead to misinterpretations of the text. There is no compelling evidence that 1st or 2nd language learners achieve high levels of literacy through exposure to the written form only of the target language...Thus, it is important for ASL-using deaf students to achieve a high level of competency in the primary form of English so they can use this form (as well as ASL) to access meaning in print" (p. 138).

McCallum, F. (1994). Robarts school parents support total communication [SEE II]. Letters to the Editor, American Annals of The Deaf, 139(3), 317-319.

"The 1988-91 Stanford Achievement Test (SAT) results achieved by Robarts residential school (in London; Ontario, Canada) graduates for language, mathematics, and reading comprehension involved *all* 39 Robarts graduates who were tested on the SAT as scored independently by the Center for Assessment and Demographic Studies (CADS) at Gallaudet University...

"These results speak for themselves. An English-based sign system prepares deaf children to take their rightful place as contributing members of society, which, in turn, leads to high self-esteem and personal independence, accomplishments all parents want their children to achieve...

"Ninety percent of the parents (completed a questionnaire after a series of inservices on input in 1992 and) still felt strongly that an English-based sign system would best serve their children. (Sixty-five percent supported SEE II and 25% supported Signed English.)...

"An English-based total communication system prepares the child educationally and socially for adult life in both the Deaf and hearing communities by developing English-language, speech, auditory, and lipreading skills. It is widely recognized that the majority of deaf children attending Ontario provincial schools have hearing parents who use English as their primary language. Families of Robarts students have proven that an English-based sign system works. The system enables all family members – deaf and hearing, young and old – to adapt readily to a useful form of manual communication. Parents are naturally a child's first teachers. It is imperative that parents and family members provide extensive ongoing support and direction to the child outside the education system from infancy through early adulthood. Communication through an English-based sign system is a major contributing factor to hearing parents' success in raising their deaf children and helping them reach their full potential" (318).

Luetke-Stahlman, B., & Tyrrell, A. (1995). Hearing adults ability to transcribe phrases incorporating homonyms given two types of models. Association of Canadian Educators of the Hearing Impaired, 21(1), 30-46.

The purpose of the research was to determine which of two inputs was easier for signing adults to transcribe into the original sentences: SEE II or Pidgin Signed English. Hearing adults (n=38) who were proficient users of Pidgin Sign English (PSE) served as participants. They watched one of two versions of a highly similar videotaped story, one signed in a literal sign model (SEE II) and the other signed in a conceptual sign model (PSE). The stories used multiple incidences of the word "run" to tell a connected tale because students who are D/HH have difficulties reading figurative English (King & Quigley, 1985). Participants' transcriptions of the stories were analyzed for both form and meaning features of interest. Results were that participants could transcribe the syntax of the original stimuli significantly more successfully ($p<.01$) after watching the SEE II version of the story. Participants also consistently encoded more of the meaning of the second story after watching the first one. The implications of using PSE in educational situations if the acquisition of English is a programmatic goal are discussed.

Mayer, C., & Wells, G. (1996). Can the linguistic interdependence theory support a Bilingual-Bicultural model of literacy education for deaf students? Journal of Deaf Studies and Deaf Education, 1(2), 93-106.

The authors challenged a false analogy that BiBi proponents make: that if ASL is well established at the base language, then literacy in English can be achieved. Mayer and Wells stated instead that the BiBi situation of the deaf learner of English literacy doesn't match the conditions assumed by the linguistic interdependence model. They argued that becoming literate involves mastering three modes of language use: "social speech," "inner speech," and written text. The educational context for deaf students is crucial different than for hearing bilingual learners (p. 93). "There is no indication of a correlation between the ability to communicate orally [through the air] in a first language and the subsequent ability to read and write in the second language (Goldman, 1985; Cummins et al., 1985) [as cited by the authors]. Although languages may be 'interdependent', therefore, the evidence suggests that, for...second language literacy learning to occur, the learner must have mastered the comparable literacy skills in his or her first language" (p. 94)...which do not exist for ASL since there is no written form. [The authors] "challenge the claims that ASL, when used alone, can bridge the gap between inner sign and written English. For this reason [they] disagreed with Rodda et al. (1993) who suggested that ASL can be used as an intralanguage to facilitate the acquisition of English" (p. 105).

Paul, P. (1996). First- and second-language English literacy. The Volta Review, Volume 98(2), 5-16.

The author discussed whether text-based literacy development in English as a first or second language for students who are deaf or hard of hearing is qualitatively similar to literacy development in English as a first language for normally hearing learners. Both in this article and in his 1998 text, Literacy and Deafness (Allyn & Bacon), Paul stressed the necessity of developing communicative English competency if reading proficiency is a goal. "Whether an adequate level of cognitive awareness of the alphabetic principle can occur as a result of interactions with...print only of a phonetic language such as English, with explanations from a

language such as ASL, is debatable, and in [his] view, not strongly supported by any existing major literacy theory" (p.12).

Paul also reviewed the research regarding the importance of phonological awareness. His conclusion was that educators might focus on developing literate thinkers and not waste valuable trying to teach profoundly deaf students to read and write English.

Luetke-Stahlman, B. (1996). A history of Seeing Essential English (SEE I). American Annals of the Deaf, 141(1), 29-33.

The purpose of the paper is to provide the historical background of the development of Seeing Essential English or SEE I and to review the existing research concerning its effectiveness. Results vary but primarily demonstrate the system to be positively associated with high reading levels. Parents and professionals are advised to consider the characteristics of SEE I (e.g., comprehensible, complete, consistent) when discussing instructional input and literacy for students who are D/HH.

Andrews, J., Ferguson, C., Roberts, S., & Hodges, P. (1997). What's up, Billy Jo? Deaf children and bilingual-bicultural instruction in East-Central Texas. American Annals of the Deaf, 142(1), 16-25.

The purpose of this article was to gather evidence to support the "BiBi" model of deaf education. Subjects were seven deaf 4-7 year old children from diverse backgrounds and varying IQ and linguistic abilities. Standardized concept, academic achievement, and reading tests documented that when the children completed first grade, they all tested at grade level. Deaf norms were used to measure achievement for all but two tests. As Andrews stated (p. 25), "the real test will be the children's reading levels in elementary schools." Reporting hearing norms would be helpful as well, as Luetke-Stahlman has commented that her deaf daughter, Marcy, scored 98% - deaf norms-and 2%-hearing norms on the GAEL (one of the tests used by Andrews et al.) when she was in first grade.

Coryell, J., & Holcomb, T. (1997). The use of sign language and sign systems in facilitating the language acquisition and communication of deaf students. Language, Speech, and Hearing Services in School, 28, 384-394.

With a historical context as a foundation, the authors presented a bias view of the benefits and concerns of sign systems and ASL. They discussed manually-coded English (MCE) as if all sign system convey the grammar of English in similar ways, and in fact (p. 386) state that all MCE systems provide "visual detail" (signs) for affixes. [This is not true, of course for Signed English.] They stated that sign systems "violate the basic premises of language acquisition" (p. 386) but fail to explain why SEE enables deaf children to acquire complex English, as is documented by Schick and Moeller (1992) and Luetke-Stahlman (1997). The authors give no research to support their claim that MCE systems are any more complex or difficult to process and lacking in expressive nature than ASL. They use PSE studies to suggest that English form can not be represented in a system such as SEE II. Finally, they discussed "uncontaminated,

non-ASL" input--an input that is non-existent since (1) ASL signs were used as the foundat0ion of SEE and Signed English and (2) all signed languages use manual features such as directionality and facial expression.

Luetke-Stahlman, B. (1997). One Mother's Story. Las Alamitos, CA: Modern Sign Press. A non-research account of the literacy development of two deaf girls who have used SEE for 8 years. The oldest has age-appropriate English reading, writing, and spelling abilities. [This behavior continues and is documented on the child's 1998 IEP as a sixth grader.]

Mahshie, S. (1997). A first language: Whose choice is it? Washington, DC: Pre-College Mission Programs; Gallaudet University.

Mahshie discussed, among other topics, Cummins' concept of Cognitive Academic Language Proficiency (CALP) without mentioning work by Mayer and Wells (1996) who explain how the model has been mis-used by BiBi proponents. That is, the Cummins model does not include reading and writing skill acquisition. Mahshie's summary of child abilities and manual codes fails to include any of the SEE research. Instead, she stated that "It is not possible for individuals to produce both an accurate string of manual symbols for units of meaning in the spoken language and many of the features that are syntactically important in the visual mode" (p. 23). To support this position she cited Hanson (1975) and Marmor and Petito (1979)—the latter, a PSE study, is reviewed in this handout.

Strong, M., & Prinz, P. (1997). A study of the relationship between ASL and English literacy. Journal of Deaf Studies and Deaf Education, 2(1), 37-43.

This study (as did one by Isrealite, Hoffmeister, and Ewoldt, 1992) demonstrated a correlation between ASL competency and English vocabulary, synonyms, antonyms, and the grammar of written sentences. The researchers gave no reading test. Four tests were combined to comprise an ASL composite score and four tests (two language and two writing) were combined to comprise an English "literacy" composite. [Typically, literacy is defined as reading and writing ability.] In the Strong and Prinz study, students (8-11 years and 12 and "older")—who had at least severe hearing losses but whose aided hearing is not reported—who had high ASL ability were also found to have high English ability—but ages or grade-levels of this ability are not provided. It is unknown whether the students would have scored even higher on English measures had age-appropriate conversational abilities in English been facilitated (although this finding is suggested by Paul, 1996): "Suppose a study...indicated beneficial effects (typically, correlation) of knowing ASL and having good English literacy skills. The simple, often stated implication was that knowledge of ASL led to the acquisition of English literacy skills" (p. 9). The reader is also referred to Bebko (1998), below.

Bebko, J. (1998). Learning, language, memory, and reading: The role of language automatization and its impact on complex cognitive activities. Journal of Deaf Studies and Deaf Education,

3(1), 4-13. Bebko reviewed the work of Mayer and Wells (1996) and noted that they "argued that language skills in ASL are not predictive of reading abilities in English or in other languages with a written form" (p. 10). They continue, "the reason posited is that ASL and written English are derived from quite different roots" (p. 10).

Bebko briefly reviewed the importance of phonological awareness in reading proficiency. He commented that the central finding in a series of studies by Hanson (see for example, 1989) was that both hearing and deaf "good" readers accessed text rapidly, using the phonological information in the written text..."and that participants were not generally from oral backgrounds. Akamatsu and Fischer (1991)...found that deaf students with better levels of English fluency were able to take better advantage of semantic and syntactic relations within sentences or lists of words, compared to students with lower levels of English proficiency...Thus, it would appear that facility with English rather than language skill generally, is more related to reading skills in English" (p. 11).

Bertling, T. (1998). American Sign Language: Shattering the myth. Wilsonville, OR: Kodiak Media Group (PO 1029-K). ISBN: 98-66201. Bertling "rewards us with the critical thinking largely absent from many proponents of ASL-based learning...[He] has done an excellent job of compiling the ignored and almost forgotten message that deaf individuals must learn to read and write English fluently for successful careers in our modern, information-based society" (p. 29 of Silent News, 30(8), August, 1998.

Heng, L. (1998). An overview of 20-year development of total communication approach with Signing Exact English in Singapore (1977-1997). Signal. _____, Singapore: The Singapore Association of the Deaf.

The author outlines the history of sign use in Singapore. Sign at school was initiated in 1977 because most of the students using either Shanghai Sign Language at a private school or oral English in the rest of the Singapore schools failed the Primary School Learning Examination (PSLE) administered by the Ministry of Education (MOE). SEE II use began in 1978. The benefits of SEE use are discussed in terms of a) the ability of students to now pass college entry exams; b) inclusion; c) the obtainment of a college education; d) self-confidence; and e) ease for interpreters. Heng concludes "we, the older deaf generation vote for SEE II" (p.4).

Lichtenstein, E. (1998). The relationship between reading processes and English skills of deaf college students. Journal of Deaf Studies and Deaf Education, 3(2), 80-130.

"From the educational point of view, a more relevant paraphrase [of the results of this and previous research] might be something like: recent research suggests that deaf students' task of learning English is made considerably more difficult by working memory processes that do not adequately process English grammatical information. Limitations of working memory capacity, and coding strategies that may not provide a complete representation of English

grammatical information in working memory, would seem to greatly complicate the already enormous job of learning to read and write English" (p. 131).

Luetke-Stahlman, B. (1998). Language Issues in Deaf Education and Language Across The Curriculum When Students Are Deaf or Hard of Hearing. Hillsboro, OR: Butte. Easy to read explanations of many of the points raised in the SEE research to date, application of the Cummins Model, and applications to methods to teach students who are D/HH.

Rosen, L. (June, 1998). Children and sign language (second letter). Rosen was dismayed by the message conveyed in the April, 1988 Monitor (American Psychological Association) "that the sign of choice for learning English is ASL." He noted that the article ignored an entire body of literature on the impact of English-based signing. Rosen refers to some of the research reviewed in this manuscript, and concluded "My son's first language was SEE II and he is reading at the college level, winning spelling bees and writing and speaking grammatically correct English. He's 10" (p. 3).

Stewart, D., & Luetke-Stahlman, B. (1998). The signing family. Washington, DC: Gallaudet University. An easy to read book for parents that describes sign language and each of the sign systems in a positive manner so parents can make informed choices. Research on SEE II is utilized in the chapter on the system in a readable and convincing manner.